

Contents

1 Cereal Genomics: Excitements, Challenges and Opportunities	1
Pushpendra K. Gupta and Rajeev K. Varshney	
2 Array-Based High-Throughput DNA Markers and Genotyping Platforms for Cereal Genetics and Genomics	11
Pushpendra K. Gupta, Sachin Rustgi and Reyazul R. Mir	
3 Sequence Based DNA Markers and Genotyping for Cereal Genomics and Breeding	57
David Edwards and Pushpendra K. Gupta	
4 Application of Next-Generation Sequencing Technologies for Genetic Diversity Analysis in Cereals	77
Seifollah Kiani, Alina Akhunova and Eduard Akhunov	
5 Genome Sequencing and Comparative Genomics in Cereals	101
Xi-Yin Wang and Andrew H. Paterson	
6 Transposons in Cereals: Shaping Genomes and Driving Their Evolution	127
Jan P. Buchmann, Beat Keller and Thomas Wicker	
7 Functional Annotation of Plant Genomes	155
Vindhya Amarasinghe, Palitha Dharmawardhana, Justin Elser and Pankaj Jaiswal	
8 Different Omics Approaches in Cereals and Their Possible Implications for Developing a System Biology Approach to Study the Mechanism of Abiotic Stress Tolerance	177
Palakolanu Sudhakar Reddy and Nese Sreenivasulu	
9 Functional Genomics of Seed Development in Cereals	215
Ming Li, Sergiy Lopato, Nataliya Kovalchuk and Peter Langridge	

10 Genomics of Cereal-Based Functional Foods	247
Nidhi Rawat, Barbara Laddomada and Bikram S. Gill	
11 QTL Mapping: Methodology and Applications in Cereal Breeding	275
Pushpendra K. Gupta, Pawan L. Kulwal and Reyazul R. Mir	
12 Molecular Genetic Basis of the Domestication Syndrome in Cereals	319
Tao Sang and Jiayang Li	
13 High-Throughput and Precision Phenotyping for Cereal Breeding Programs	341
Boddupalli M. Prasanna, Jose L. Araus, Jose Crossa, Jill E. Cairns, Natalia Palacios, Biswanath Das and Cosmos Magorokosho	
14 Marker-Assisted Selection in Cereals: Platforms, Strategies and Examples	375
Yunbi Xu, Chuanxiao Xie, Jianmin Wan, Zhonghu He and Boddupalli M. Prasanna	
Appendix I: Contributors	413
Appendix II: Reviewers	419
Index	421

Cereal Genomics II

Gupta, P.K.; Varshney, R. (Eds.)

2013, VIII, 438 p. 46 illus., 27 illus. in color., Hardcover

ISBN: 978-94-007-6400-2